

Appl. No. 10/710,512
Response dated 9/19/2006
Reply to Office Action of 6/27/2006

AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-33. (canceled)

34. (currently amended) A system for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

a first camera;

a second camera mounted coplanar to said first camera wherein said first camera and said second camera comprise collinear horizontal center lines;

a camera mount coupled with said first camera and said second camera wherein said camera mount is rotated in a first axial angle with respect to ground between 0 and 90 degrees about a roll axis defined as ~~perpendicular to a plane in which said first camera and said second camera are mounted coplanar in parallel to said ground~~; and,

a computer coupled with said first camera and said second camera and configured to calculate a distance using a first picture obtained from said first camera and a second picture obtained from said second camera to a feature found along an epipolar line parallel to said collinear horizontal center lines.

35. (previously presented) The system of claim 34 wherein said first axial angle is substantially 45 degrees.

36. (previously presented) The system of claim 34 wherein said first axial angle is substantially 37 degrees.

Appl. No. 10/710,512
Response dated 9/19/2006
Reply to Office Action of 6/27/2006

37. (previously presented) The system of claim 34 wherein said first axial angle is substantially 29 degrees.

38. (previously presented) The system of claim 34 wherein said camera mount is rotated in a second axial angle between 0 and 90 degrees about a pitch axis defined as parallel to an axis that runs through said first camera and said second camera and orthogonal to said roll axis.

39. (currently amended) A method for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

attaching a first camera and a second camera to a camera mount;
rotating said camera mount in a first axial angle with respect to ground between 0 and 90 degrees about a roll axis defined as ~~perpendicular to a plane in which said first camera and said second camera are mounted in~~ parallel to said ground;
obtaining a first picture from said first camera;
obtaining a second picture from said second camera; and,
calculating a distance to an object.

40. (previously presented) The method of claim 39 wherein said first axial angle is substantially 45 degrees.

41. (previously presented) The method of claim 39 wherein said first axial angle is substantially 37 degrees.

42. (previously presented) The method of claim 39 wherein said first axial angle is substantially 29 degrees.

43. (previously presented) The method of claim 39 further comprising:

Appl. No. 10/710,512
Response dated 9/19/2006
Reply to Office Action of 6/27/2006

rotating said camera mount in a second axial angle between 0 and 90 degrees about a pitch axis defined as parallel to an axis that runs through said first camera and said second camera and orthogonal to said roll axis.

44. (currently amended) A system for calculating distances to objects within three-dimensional space in an environment comprising horizontal and vertical lines using an angled axis machine vision system comprising:

means for attaching a first camera and a second camera to a camera mount;

means for rotating said camera mount in a first axial angle with respect to ground between 0 and 90 degrees about a roll axis defined as ~~perpendicular to a plane in which said first camera and said second camera are mounted in parallel to said ground~~;

means for obtaining a first picture from said first camera;

means for obtaining a second picture from said second camera; and,

means for calculating a distance to an object.

45. (previously presented) The system of claim 44 wherein said first axial angle is substantially 45 degrees.

46. (previously presented) The system of claim 44 wherein said first axial angle is substantially 37 degrees.

47. (previously presented) The system of claim 44 wherein said first axial angle is substantially 29 degrees.

48. (previously presented) The system of claim 44 further comprising:

means for rotating said camera mount in a second axial angle between 0 and 90 degrees about a pitch axis defined as parallel to an axis that runs through said first camera and said second camera and orthogonal to said roll axis.